United States Department of Agriculture

MIDAS Performance Measurement Baseline (PMB) Kickoff

February 12, 2014

Agenda

Purpose

The purpose of this training session is to provide guidance on standards for Earned Value Management (EVM) and communicate expectations to contractors regarding the establishment of Performance Measurement Baselines (PMBs)

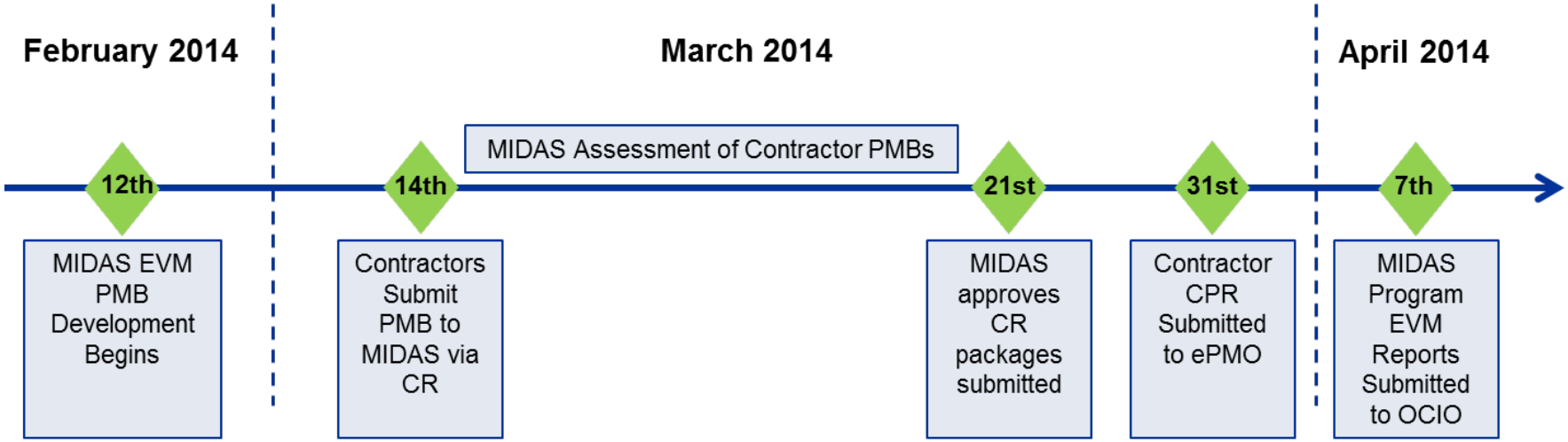
Takeaways

After this training, each contractor should have an understanding of:

- EVM and how to apply it to your specific contract
- Components of a PMB and how your PMB impacts the MIDAS Investment Baseline
- EVM reporting against your specific PMB
- Maintenance of the PMB throughout the program cycle

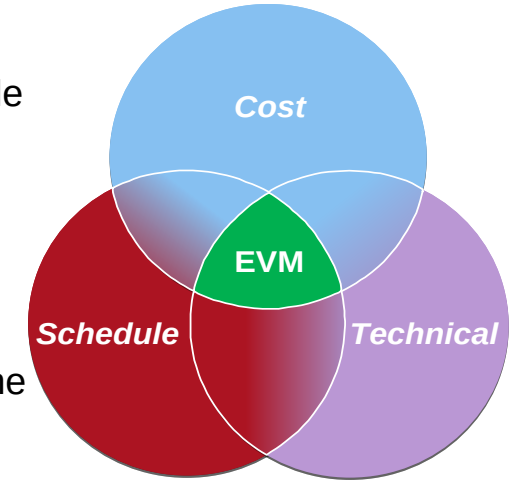
MIDAS Change Control & PMB Timeline

- The MIDAS Re-baseline package was submitted February 2014 and is currently awaiting E-Board approval needed by February 28th.
- Contractors are now expected to submit their PMB via Change Request based on the following timeline:



Introduction to EVM

- Earned Value Management (EVM): The use of an integrated management system that coordinates work scope, schedule, and cost objectives and employs earned value methods for program planning and control.
- Earned Value is a management technique that:
  - Relates technical performance to associated cost and schedule
  - Measures actual work progress
  - States the value of work completed in dollars
  - Provides for integrating project scope, cost, and schedule objectives
  - Ties to a baseline plan for performance management during the execution of the project



Why use EVM?

Facilitates Project Management & Controls

- Integrates cost, schedule, and technical status
- Identifies potential problems before they occur
- Reduces unplanned work
- Traces problems to source
- Assigns accountability to lowest levels

Improves Understanding of Task, Resource & Timing Needs

- Integrates cost, schedule, and technical status
- Provides notification of cost/schedule deviations
- Estimates project completion
- Provides visibility into critical areas

Provides Valid, Timely & Auditable Project Performance Data

- Integrates cost, schedule, and technical status
- Provides true cost condition (i.e., cost and schedule impact of technical problems)
- Provides an objective measurement of work accomplishment
- Fosters management decisions within a framework of reality

MIDAS Program EVM Guidance as it relates to USDA EVM Policy

The MIDAS program EVM standard is a fully developed extension of the USDA EVM Policy

- All contractors are required to produce a resource-loaded, risk-adjusted schedule that is updated on a weekly basis and aligned to the Program Integrated Master Schedule (PIMS).
- The MIDAS Program Management Office (PMO) may evaluate contractor EVM tools to ensure they are in-line with USDA EVM policy.
- Budgets are allocated via the project office work authorization process to the various Deputy Directors and Deputy Project Managers. These budgets are assigned to Control Account Managers (CAMs) within the PMO or designated for a third party contractor to develop the deliverables or provide the services of the project.
- In all cases, the bottom-up rollup of the budgets in the Control Account Plans (CAPs) of both the government and the contractors cannot exceed the total amount of appropriated budget for the MIDAS program.
- The budgets are allocated down to the individual work packages and planning packages within each CAP as appropriate to pay for the effort and expenses required to perform the work defined in the CAP.
- Time-phased resources are required to be clearly identified at the work package level.
- A time-phased budget baseline for the work to be accomplished in each CAP is reviewed and approved. Progress is then measured on a monthly basis.

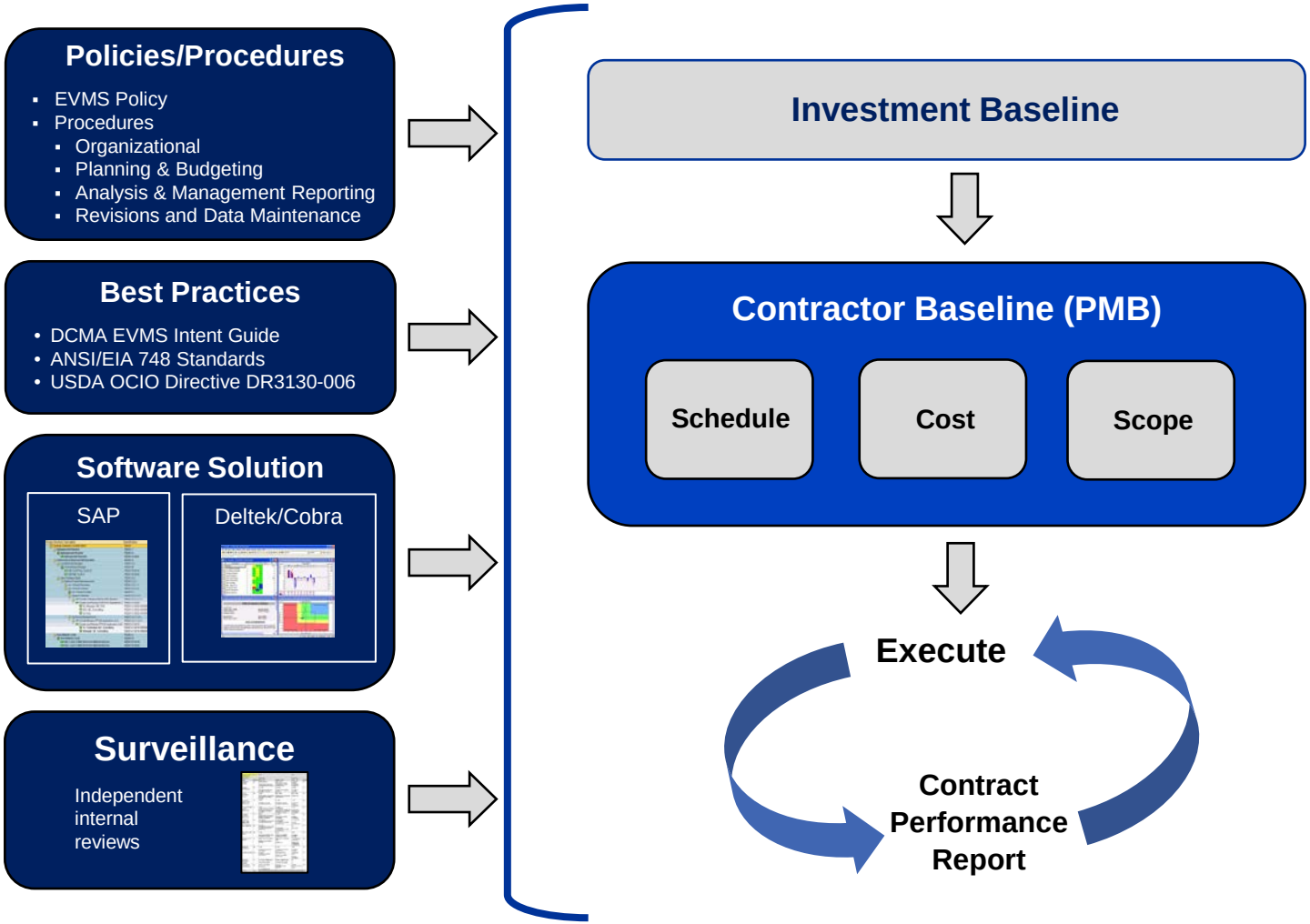
MIDAS EVM Guidance: Work Authorization Document

Work Authorization Document (WAD): The objective of the WAD is to ensure that all defined project work is authorized by the Project Manager and communicated to the appropriate responsible CAMs who then authorize the appropriate organization or person to perform approved project work scope.

- The Work Authorization Document (WAD) grants the Deputy Directors and Deputy Project Managers the authority to either develop or acquire the goods and services required to accomplish the objectives of the MIDAS program.
- All contractors are required to also use WADs as part of their Earned Value Management System (EVMS). Contractors can use the WAD templates that have been found to work best for the contractor. **No execution of work should proceed without a WAD signed by the contractor's Project Manger (PM).**
- Included in the WAD are details concerning the task work to be performed, a detailed list of task outputs, Contract Data Requirements List (CDRL) items, and other task-specific deliverables.
- WAD includes the associated budget for the task and authorizing signatures that confirm that the staff member is authorized to work on the task and should not include the number of hours that may be charged.
- The Government Integrated Baseline Review (IBR) team evaluates the WAD to ensure that the work documented is truly representative of the work to be performed, that the proper signatures are present, and that the deliverables listed are complete and accurate.

EVMS sets the foundation to create a Performance Measurement Baseline

Earned Value Management System (EVMS) is a set of policies, procedures, software, surveillance and industry best practices utilized to manage program cost and schedule.



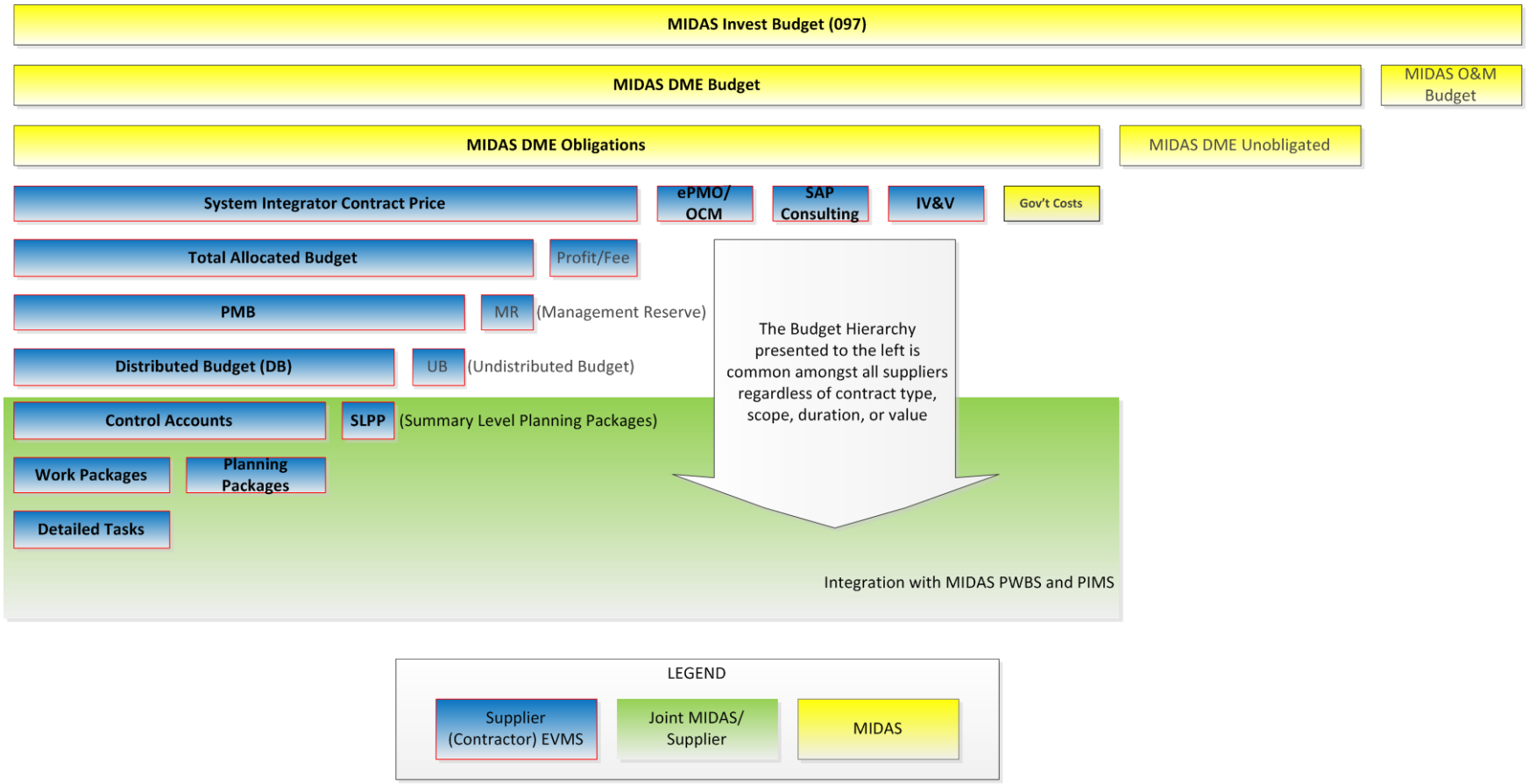
Performance Measurement Baseline (PMB)

Understanding the Performance Management Baseline

- The Performance Measurement Baseline (PMB) is the plan for expenditure of organizational resources as necessary to meet program scope and schedule objectives.
  - PMB is a management tool that reflects the total time-phased budget for all of the control accounts and higher level accounts plus applicable indirect budgets and any undistributed budget.
  - It is a representation of current program plans which will and must change as program plans are refined and revised.
  - Proper maintenance of the baseline will prevent performance measurement against an outdated or unauthorized plan.
- Each contractor is expected to prepare contractor specific PMBs to align to the MIDAS investment baseline scope, schedule, and cost baseline.
- Contractors must provide integrated cost and schedule performance data, regardless of the type of contract or contract amount, allowing for a fully integrated cost and schedule PMB.
- Management Reserves will be controlled at the MIDAS program level and not included in contractor PMBs.

Understanding the Elements of the Investment Baseline

Each of the elements below are integrated to form the MIDAS Investment Baseline. The elements demonstrate the relationship between the Investment Baseline and each contractor PMB.



Building Your PMB: PMB Components

The following six components must be developed to establish a PMB:

- Work Breakdown Structure (WBS)
- Organization Breakdown Structure (OBS)
- Control Accounts
- Work & Planning Packages
- Contractor Schedule
- Budget

The following slides will discuss each component in detail.

Building Your PMB Step #1: WBS and OBS

The first activities to build the PMB are:

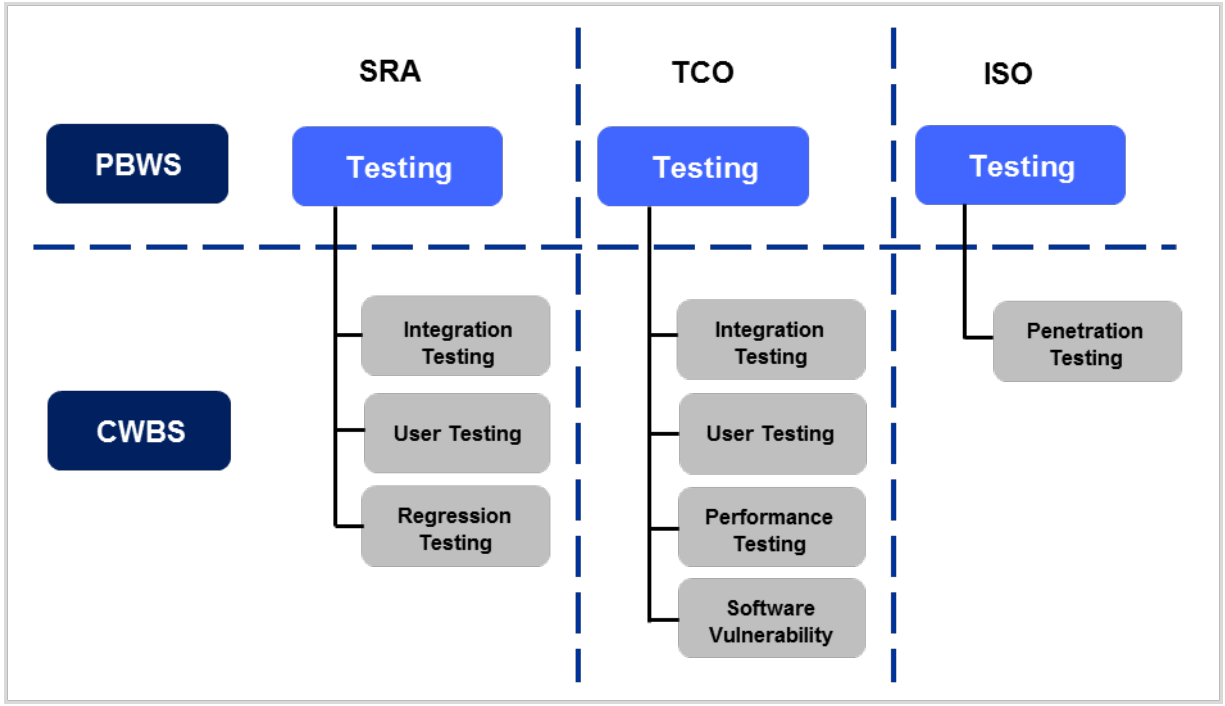
1. Define the scope from your statement of work (SOW).
2. Identify what work needs to be accomplished by developing the WBS.
3. Identify who in the organization will perform the work by developing the OBS.

Define the Scope from the SOW	• Identify scope from SOW.
Define the Scope with a WBS	• The WBS is the basis of the cost estimate and project schedule to map actual costs • It progressively deconstructs the deliverables of the entire effort through lower level WBS elements and control accounts. • The hierarchical WBS includes all of the technical tasks that lead to the end product or final delivery. • The WBS reflects the requirements and is a valuable communication tool between systems engineering, program management and other functional organizations. • It is critical that the WBS is comprehensive enough to represent the entire program to a level of detail sufficient to manage the size, complexity, and risk associated with the program. • While the EV data is typically reported at the summary level, the WBS can be expanded to varying degrees of detail so that problems can be quickly identified and tracked. • Discrete and LOE work cannot take place within the same work package. • Contractor WBS must be align with the Program WBS.
Define the Organization Responsible for the Scope of a OBS	• After the WBS is established, resources are assigned to perform the specific tasks identified in the WBS. • The levels of accountability, or control accounts, are determined at the points of intersection between the OBS and the WBS which is where performance is measured. • Contractor OBS must align with the Program OBS.

The Contractor WBS must align to the Program WBS

There are two types of WBS:

- The Program WBS (PWBS) encompasses the entire program and includes all elements used to develop and extend to lower level WBS element structures. It ensures that work elements are defined and relate to only specific work efforts so activities are not omitted or duplicated.
- The Contractor WBS (CWBS) is the WBS for reporting purposes and its discretionary extension by the contractor. It includes all the elements for the products which are the contractor's responsibility.



Building Your PMB Step #2: Control Accounts

The next step to build the PMB is to create the control accounts based on the WBS and OBS and assign the CAMs.

Control Accounts	• At the control account level, costs are collected and schedule variances are reported. • Each control account is further broken down into work packages and planning packages. • The Responsibility Assignment Matrix (RAM) defines the intersections of the WBS and OBS elements known as the control accounts.

Project Lead or CAM Responsibilities include:
Each task order/contract will report schedule updates to the Project Scheduler, who shares the results with the MIDAS PMO on a weekly basis
Compare monthly plans for schedule, cost and performance with “actuals”
Provide EV lead with Contractor Performance Report (CPR) for each task order/contract ▪ Each task order/contract will report cost and schedule performance to an approved baseline ▪ Each task order/contract will report Estimate to Complete for remaining work
Provide EV lead with change request should a scope change occur to the respective task order
Ensure accurate charging of resources to scheduled activities
At a minimum, provide “Management by Exception” comments for efforts with significant schedule and/or cost variances (in excess of 10%) ▪ This should include the root cause of schedule slips or performance issues and corrective action plans to mitigate
Provide/Reconcile status for non-Level of Effort activities

Building Your PMB Step #3: Work & Planning Packages

The next activities to build the PMB are:

1. Create work package with defined deliverables.
2. Identify planning packages for future work to be defined.
3. Identify high risk work packages and review with Business Management Office (BMO) Lead.

Work Packages	• Manageable unit of work with detailed tasks that typically are four to six weeks long. • Discrete effort to meet control account objectives and are defined by who authorizes the effort. • Deliverable or project work component at the lowest level of each branch of the WBS.
Planning Packages	• Far-term work that is later defined and broken down into work packages when the lowest level detailed of the work are defined, budgeted, and scheduled. • Designed around major milestones rather than general time increments.

Application of Earned Value Techniques within the Work & Planning Packages

Contractors should assign an Earned Value Technique to each work package to capture task and activity performance during monthly assessments. The techniques defined below are:

EV Techniques	Description
Fixed Formula	The Fixed Formula method for determining progress applies to work packages and control accounts that span a short period of time (within an accounting period). This method applies a percent complete to the start and finish of an activity. Generally, the percentages used in the formula are 0/100, 50/50, or 20/80.
Weighted Milestones	The Milestone Weighting method assigns budget value to each milestone. Budget is not earned until the full completion of each milestone. Milestone Weighting is used as a method for work packages with long term durations and ideally should have milestones each month or during each accounting period.
Physical Percent Complete	The Physical % Complete applies a pre-determined technical measurement of the physical completeness of a deliverable being produced. This % complete is multiplied by the budget of the work package in order to calculate EV. All work packages using this EVT must be supported by quantitative backup data.
Level of Effort (LOE)	The LOE method is based on the passage of time. A monthly budget value is earned with the passage of time and is always equal to the monthly planned value. This method is usually used for accounts that are immeasurable, such as those that are more time related than task oriented. LOE should be used sparingly. The program will closely assess how much LOE is used.
****Weighted Milestones with Percent Complete**	The Milestone Weighting with Percent Complete method assigns budget value to each milestone, and it is earned based on the percent of work completed against each individual milestone. Like Milestone Weighting, Milestone Weighting with Percent Complete is used as a method for work packages with long term durations and ideally should have milestones each month or during each accounting period.
****Subjective Percent Complete**	The Subjective Percent Complete method applies a subjectively determined percent complete to a budget value to determine what is earned. This percent complete value is determined by the CAM or other designated individual. The percent complete is multiplied by the total budget of the work package in order to calculate EV.

***These methods should not be used unless approved by MIDAS Business Management Lead*

Building Your PMB Step #4: Building Your Contractor Schedule

- Typically, contractors build their Contractor Schedule which is then incorporated to build the Program Integrated Master Schedule (PIMS).
- For the MIDAS Program, the PIMS has already been established as the complete schedule for MIDAS that covers all work and resources supporting the program, regardless of organization.
  - The PIMS is baselined to produce the investment baseline of the entire MIDAS program
- Contractors may create a contractor specific schedule to support monthly reporting. Contractor schedules (or other offline tools) **must align perfectly with the PIMS.**
- Progress reviews of the PIMS are taken at the project level on a monthly basis with required cost performance reporting which allows the program to target high risk areas.

	MIDAS Tiger	POC	ID	Task Name	Duration	Physical %	Start	Finish	Actual Start	Actual Finish	Baseline Duration	Baseline Start	Baseline Finish
1	**MIDAS**	**MIDAS**	**1**	**MIDAS**	**682 days**	**0%**	**Thu 8/1/13**	**Mon 5/16/16**	**Thu 8/1/13**	**NA**	**682 days**	**Thu 8/1/13**	**Mon 5/16/16**
2	MIDAS	MIDAS	2	Project Begin	0 days	100%	Thu 8/1/13	Thu 8/1/13	Thu 8/1/13	Thu 8/1/13	0 days	Thu 8/1/13	Thu 8/1/13
3	MIDAS	MIDAS	3	Government Shutdown	14 days	100%	Tue 10/1/13	Fri 10/18/13	Tue 10/1/13	Fri 10/18/13	14 days	Tue 10/1/13	Fri 10/18/13
4	MIDAS	MIDAS	4	Project Complete	0 days	0%	Mon 5/16/16	Mon 5/16/16	NA	NA	0 days	Mon 5/16/16	Mon 5/16/16
5	**MIDAS**	**MIDAS**	**5**	**Executive Milestones**	**495 days**	**0%**	**Wed 11/6/13**	**Mon 11/16/15**	**Wed 11/6/13**	**NA**	**495 days**	**Wed 11/6/13**	**Mon 11/16/15**
20	**MIDAS**	**MIDAS**	**20**	**MIDAS Development**	**682 days**	**0%**	**Thu 8/1/13**	**Mon 5/16/16**	**Thu 8/1/13**	**NA**	**682 days**	**Thu 8/1/13**	**Mon 5/16/16**
21	**BMO**	**MIDAS**	**21**	**Solution Architecture**	**290.5 days**	**0%**	**Tue 4/1/14**	**Thu 6/4/15**	**NA**	**NA**	**290.5 days**	**Tue 4/1/14**	**Thu 6/4/15**
32	**BMO**	**Kara C.**	**32**	**Business Management**	**562 days**	**0%**	**Thu 8/1/13**	**Mon 11/16/15**	**Thu 8/1/13**	**NA**	**562 days**	**Thu 8/1/13**	**Mon 11/16/15**
213	**IV&V**	**Jeremy**	**213**	**IV&V**	**628 days**	**0%**	**Fri 10/18/13**	**Mon 5/16/16**	**Fri 10/18/13**	**NA**	**628 days**	**Fri 10/18/13**	**Mon 5/16/16**
462	**Technical**	**Nikee C.**	**462**	**Technical Environments**	**517 days**	**0%**	**Thu 8/1/13**	**Thu 9/10/15**	**Thu 8/1/13**	**NA**	**517 days**	**Thu 8/1/13**	**Thu 9/10/15**
671	**MIDAS**	**MIDAS**	**671**	**Release 1: Farm Records**	**306.5 days**	**0%**	**Thu 8/1/13**	**Wed 10/29/14**	**Thu 8/1/13**	**NA**	**306.5 days**	**Thu 8/1/13**	**Wed 10/29/14**
702	**MIDAS**	**MIDAS**	**702**	**Release 2: Business Partner**	**436.5 days**	**0%**	**Thu 8/1/13**	**Mon 5/18/15**	**Thu 8/1/13**	**NA**	**436.5 days**	**Thu 8/1/13**	**Mon 5/18/15**
956	**MIDAS**	**MIDAS**	**923**	**Release 3: Acreage Reporting/Inventory Reporting**	**434.5 days**	**0%**	**Thu 8/1/13**	**Thu 5/14/15**	**Thu 8/1/13**	**NA**	**425.5 days**	**Thu 8/1/13**	**Fri 5/1/15**
271	**MIDAS**	**MIDAS**	**1206**	**Release 4: Historical Changes/Analytics**	**473.5 days**	**0%**	**Mon 2/3/14**	**Mon 1/11/16**	**NA**	**NA**	**473.5 days**	**Mon 2/3/14**	**Mon 1/11/16**
492	**MIDAS**	**MIDAS**	**1427**	**Release 5: Customer Self Service Portal**	**454 days**	**0%**	**Fri 11/1/13**	**Fri 9/11/15**	**Fri 11/1/13**	**NA**	**454 days**	**Fri 11/1/13**	**Fri 9/11/15**

Building Your PMB Step #5: Compile the PMB Elements to Establish Your Budget

Budget	The total authorized budget for accomplishing the program scope of work. It is equal to the sum of all allocated budgets plus any undistributed budget. The Budget at Completion will form the Performance Measurement Baseline as it is allocated and time-phased in accordance with program schedule requirements.

- The initial program budget is normally tied directly to the initial program cost estimates, the negotiated contract cost, or the internal management goals.
- Management reserves may be withheld before the budget is distributed to lower accounts.
- The budget will be revised as program Change Requests (CRs) are authorized and incorporated, or as internal re-planning actions are taken.
- The program budget, at any level and for any organization or task, will only contain budget for specific authorized work.
- Contractor budget is based on the contractor's task order ceiling.

Basis of Estimates (BOE) describe the primary methods, ground rules, models, assumptions, and data sources used to estimate the project cost.

- BOEs provide a bottom-up cost estimate to determine budget, located at the control account level.
- Contractors are expected to develop and submit BOEs in alignment with the PMB.
- All BOEs must recorded, reviewed, and approved.

PMB Checklist

PMB Checklist

- ✓ Statement of Work (SOW)
- ✓ WBS (Work Package Level)
- ✓ WBS Dictionary (include WBS Number, Name, Description, Artifact/Work products, CAM, EVT)
- ✓ OBS
- ✓ Responsibility Assignment Matrix
- ✓ Contractor Schedule (Alignment with PIMS and Work Package Time-phasing)
- ✓ Control Account Plans (CAPs; include Resource Name)
- ✓ Planning Assumptions & Basis of Estimates
- ✓ Risk Register Updates & Mapping
- ✓ Work Authorization Documents (WAD)
- ✓ Contractor Program Management Plan (PMP)

Reporting

Variances & EVM Reporting Analysis

Analyzing variances to cost and schedule performance is critical to effective EV management.

- Schedule Variances (SV) = BCWP - BCWS
  - Positive (+) = Ahead of Schedule, Negative (-) = Behind Schedule.
  - Each budgeted WBS element can incur a SV.
  - Thresholds set that apply to favorable (+) and unfavorable (-) variances.
- Cost Variances (CV) = BCWP - ACWP
  - Positive (+) = More efficient than planned, Negative (-) = Less efficient than planned.
  - Variance explanations as with SV apply.
- Variance Alerts
  - 7% Variance = MIDAS Attention
  - 10% Variance = Red Flag

EV Terminology	
Planned Value (PV)	▪ The sum of the approved budgets (including any overhead allocations) for activities (or portions of activities) scheduled to be performed during a given period. ▪ The PV must be presented as current and cumulative ▪ Also called Budgeted Cost of Work Scheduled (BCWS) or Schedule (S)
Earned Value (EV)	▪ The sum of the approved budgets (including any overhead allocation) for activities (or portions of activities) completed during a given period. ▪ Calculated based on an earned value method of either determining percent complete of the work or setting to the Planned Value (PV) when level of effort work packages are used. ▪ As with PV and AC, EV must be calculated as current and cumulative ▪ Also called Budgeted Cost for Work Performed (BCWP) or (P)
Actual Cost (AC)	▪ The total cost incurred (direct or indirect) in accomplishing work during a given time period. ▪ The AC must be presented as current and cumulative ▪ Also called Actual Cost of Work Performed (ACWP) or Actuals (A)

EVM Reports

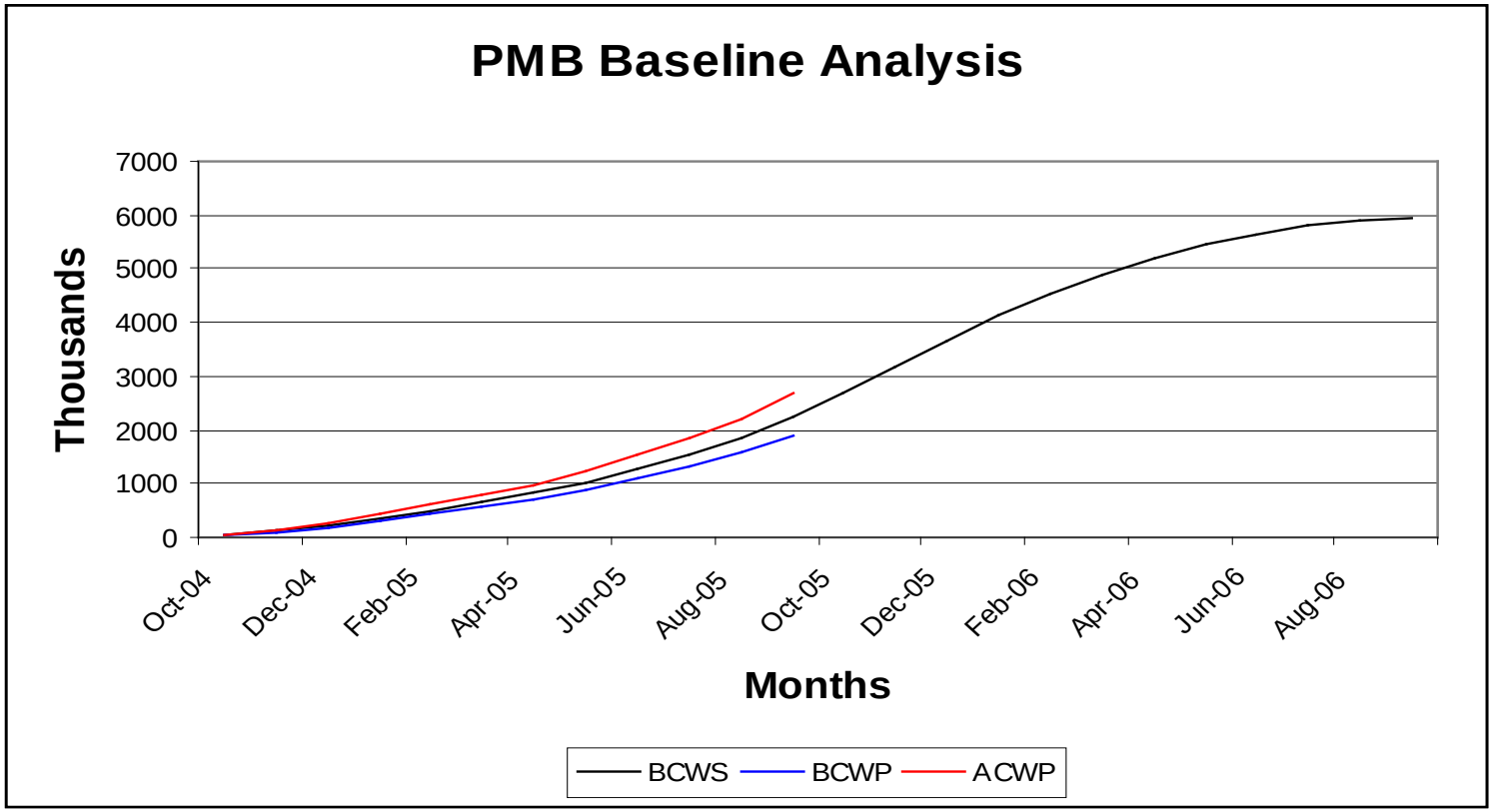
- The Contractor Performance Report (CPR) provides contract cost and schedule performance data that is used to identify problems early in an acquisition contract and forecast future contract performance
- Risks should be incorporated into the MIDAS Program Risk Register

Title	Frequency	Description
Format 1 – WBS	Monthly	Costs are organized by WBS element at a level pre-determined by the MIDAS PMO.
Format 2 – Organizational Categories	Monthly	Reports same data as Format 1 but costs are organized by functional type, such as System Engineering, Electrical Engineering, etc.
Format 3 – Baseline	Monthly or Quarterly	This format only provides information on the baseline; it tracks changes to the baseline throughout the program's duration.
Format 4 – Staffing	Monthly or Quarterly	Staffing data plotted over time and correlated to major milestones and activities on the contract schedule shows accuracy of labor levels.
Format 5 – Problem Areas	Monthly	This format provides explanations for cost and schedule variances that have exceeded threshold. It provides a written explanation as to why the variance occurred, as well as written descriptions on how the contractor plans to resolve the cause of the variance.

- The MIDAS program contractually requires contractors to provide all five formats for analysis to assist in management of the program.

Value of PMB Analysis

PMB analysis evaluates scheduled work (BCWS) against actual costs (ACWP) incurred and accomplished work (BCWP) to determine how much work has been completed monthly.

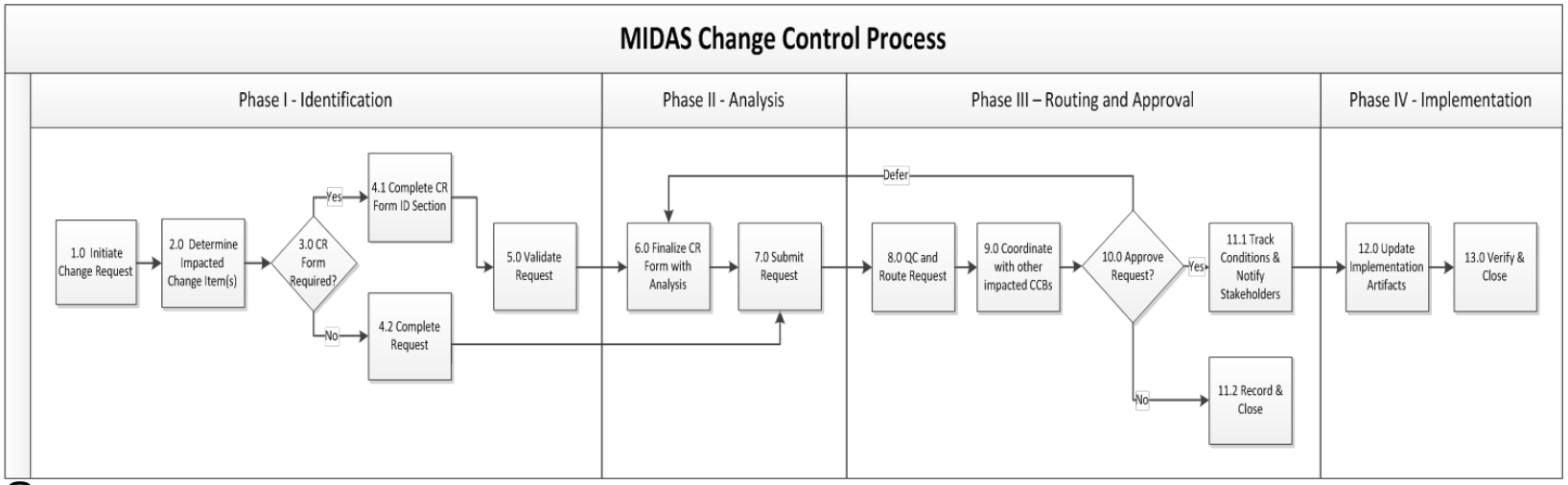


Baseline Maintenance

Changes to the PMB are Managed through the Change Control Process

The MIDAS project has incorporated a strict change control and configuration control process, as well as an overview and review process of governance that prevents any unauthorized changes to the budget.

- The MIDAS change control process ensures that the appropriate steps occur in response to changes to the existing contactor PMB. It defines the roles and responsibilities, identifies process steps and required approvals with thresholds and defines change request types by categorizing all items under change control.
- **Any LOE work planned into the PMB must be explicitly spelled out in the dictionary. If not, new LOE requests will be considered a change request.**
- There are four phases to the Change Control process for a change request (CR):
  - Identification
  - Analysis
  - Routing and Approval
  - Implementation



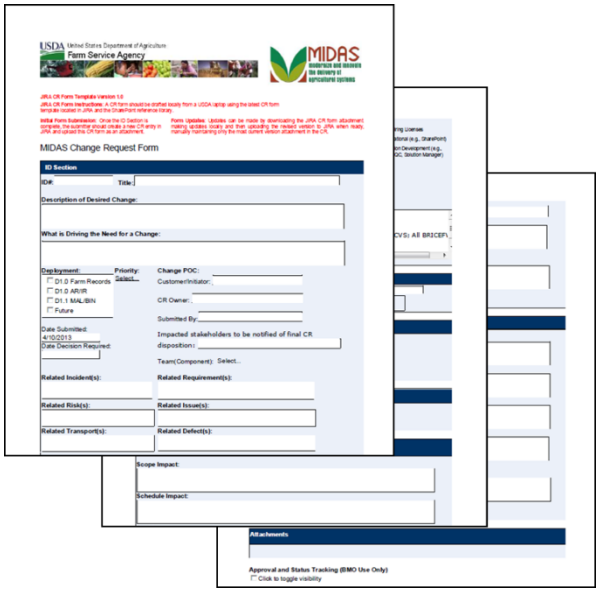
Change Control Process with Change Control Board

- Change requests can be identified throughout the life of the project. Changes that affect the scope, budget, schedule, and/or effort or requested changes to signed-off deliverables of the project are formally documented, prioritized, analyzed, reviewed, and approved before implementation. Process flow, CR Form usage, approvals, and roles and responsibilities vary depending on the CR item.
- Baseline changes should only be derived from a change in scope.

  Baseline Change Request (BCR) Log is maintained at the program level.

  The Change Control Board (CCB) is a chartered group responsible to:

  - Establish MIDAS program baseline scope, schedule, and cost in alignment with the Investment Charter
    - Review and adjudicate requested changes to the MIDAS program baseline schedule, cost or scope
    - Approve new MIDAS contracts and modifications to existing contracts
    - Approve contract baselines following an IBR or equivalent baseline review process



Additionally, the CCB delegates change control authority of certain items through the use of defined thresholds. For a detailed listing of all change control items, associated thresholds and their corresponding approving authority, refer to the Change Control Thresholds Decision Memorandum located in the reference library on SharePoint. For more information on CCB membership and procedures, refer to the CCB Charter.

Reference Slide

Resource	Point of Contact
MIDAS PIMS	Dianne Doshier
Cost Estimates	Ayanna Wilson
Change Requests	Jason Root

Resource	Hyperlink
GEIA Standard Earned Value Management Systems (EIA-748-B)	https://fsa.sc.egov.usda.gov/mgr/itsd/MIDAS/pops/Pages/ProcessProcedures.aspx
MIDAS Change Control Process	https://fsa.sc.egov.usda.gov/mgr/itsd/MIDAS/pops/MIDAS%20JIRA%20Form%20Library/Forms/AllItems.aspx
MIDAS Project Earned Value Management System (EVMS) Description	https://fsa.sc.egov.usda.gov/mgr/itsd/MIDAS/pops/Pages/ProcessProcedures.aspx
MIDAS Project/Contract Performance Report (CPR) Guide	https://fsa.sc.egov.usda.gov/mgr/itsd/MIDAS/pops/Pages/ProcessProcedures.aspx

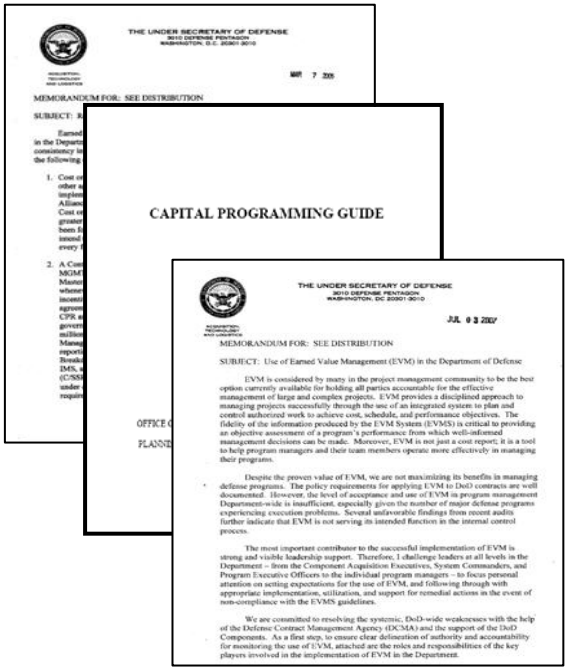
Q & A

Appendix

EVM Guidance

USDA MIDAS EVM Guidance

EVM is required by the Federal Legislation and Department Regulations governing the USDA MIDAS program.



- USDA OCIO Directive DR3130-006 (2010); USDA CPIC Policy (2009)
  - MIDAS will be required to report EV metrics to USDA in accordance with this Department level directive.
- OMB Circular A-11, Part 7: Capital Programming Guide
  - Applies to all executive branch agencies;
  - Requires use of an Earned Value or similar performance-based management system for risk and program management of capital asset acquisition.
- OMB Circular A-109: Major Systems Acquisitions
- Federal Acquisition Regulations (FAR)
- Government Performance and Results Act of 1993 (GPRA)
  - Establishes the requirement for strategic planning and performance measurement in the Federal Government.
- Federal Acquisition Streamlining Act of 1994 (FASA)
  - Requires that programs must achieve on average, 90% of their cost, schedule, and performance goals or they will be considered for termination.
- Clinger-Cohen Act (also referred to at the Information Technology Management Reform Act)
  - Requires agencies to analyze, track, and evaluate risks for all major capital investments in information systems
- American National Standard Institute/Electronics Institute Alliance (ANSI/EIA) Standard 748
  - Defines core and full compliance criteria as required by Treasury and OMB.

EVMS Terminology

TERMINOLOGY

NCC	Negotiated Contract Cost	Contract price less profit / fee(s)
AUW	Authorized Unpriced Work	Work contractually approved, but not yet negotiated / definitized
CBB	Contract Budget Base	Sum of NCC and AUW
OTB	Over Target Baseline	Sum of CBB and recognized overrun
TAB	Total Allocated Budget	Sum of all budgets for work on contract = NCC, CBB, or OTB
BAC	Budget At Completion	Total budget for total contract thru any given level
PMB	Performance Measurement Baseline	Contract time-phased budget plan
MR	Management Reserve	Budget withheld by Ktr PM for unknowns / risk management
UB	Undistributed Budget	Broadly defined activities not yet distributed to CAs
CA	Control Account	Lowest CWBS element assigned to a single focal point to plan & cont scope / schedule / budget
WP	Work Package	Near-term, detail-planned activities within a CA
PP	Planning Package	Far-term CA activities not yet defined into WPs
BCWS	Budgeted Cost for Work Scheduled	Value of work planned to be accomplished = PLANNED VALUE
BCWP	Budgeted Cost for Work Performed	Value of work accomplished = EARNED VALUE
ACWP	Actual Cost of Work Performed	Cost of work accomplished = ACTUAL COST
EAC	Estimate At Completion	Estimate of total cost for total contract thru any given level; may be generated by Ktr, PMO, DCMA, etc. = $EAC_{Ktr\,/\,PMO\,/\,DCMA}$
LRE	Latest Revised Estimate	Ktr's EAC or EAC_{Ktr}
SLPP	Summary Level Planning Package	Far-term activities not yet defined into CAs
TCPI	To Complete Performance Index	Efficiency needed from 'time now' to achieve an EAC

VARIANCES

Favorable is Positive, Unfavorable is Negative

Cost Variance	CV	= BCWP – ACWP	CV %	= (CV / BCWP) * 100
Schedule Variance	SV	= BCWP – BCWS	SV %	= (SV / BCWS) * 100
Variance at Completion	VAC	= BAC – EAC		

OVERALL STATUS

- % Schedule = $(BCWS_{CUM}$ / BAC) * 100
- % Complete = $(BCWP_{CUM}$ / BAC) * 100
- % Spent = $(ACWP_{CUM}$ / BAC) * 100

DoD TRIPWIRE METRICS

Favorable is > 1.0, Unfavorable is < 1.0

- Cost Efficiency CPI = BCWP / ACWP
- Schedule Efficiency SPI = BCWP / BCWS

BASELINE EXECUTION INDEX (BEI) (Schedule Metric)

BEI = # of Baseline Tasks Actually Completed / # of Baseline Tasks Scheduled for Completion

CRITICAL PATH LENGTH INDEX (CPLI) (Schedule Metric)

CPLI = (Critical Path Duration + Float Duration $_{(to\ baseline\ finish)}$) / Critical Path Duration

TO COMPLETE PERFORMANCE INDEX (TCPI) # §

$TCPI_{EAC}$ = Work Remaining / Cost Remaining = (BAC – $BCWP_{CUM}$) / (EAC – $ACWP_{CUM}$)

ESTIMATE AT COMPLETION

- EAC = Actuals to Date + [(Remaining Work) / (Efficiency Factor)]
- EAC_{CPI} = $ACWP_{CUM}$ + [(BAC – $BCWP_{CUM}$) / CPI_{CUM}] = BAC / CPI_{CUM}
- $EAC_{Composite}$ = $ACWP_{CUM}$ + [(BAC – $BCWP_{CUM}$) / (CPI_{CUM} * SPI_{CUM})]